



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,076	10/27/2003	Ming C. Hao	200209329	3816

22879 7590 01/23/2007
HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
LAY, MICHELLE K	
ART UNIT	PAPER NUMBER
2628	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/694,076

Applicant(s)

HAO ET AL.

Examiner

Michelle K. Lay

Art Unit

2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The amendment filed 11/30/2006 has been entered and made of record. The amendment to claims 1, 13, and 20 has overcome the claim objection made in the Non-Final office action filed 07/26/2006. Claims 1-25 are pending.

Response to Arguments

Applicant's arguments filed 11/30/2006 have been fully considered but they are not persuasive. Applicant argues Keim et al. ("Hierarchical Pixel Bar Charts") fails to teach visual boundary for representing an aggregate set. Examiner respectfully disagrees. The dividing attributes, D_x and D_y of Keim are used to partition the data into a small number of partitions [pg. 259 §4.1]. Each smaller partition defined by the dividing attributes, D_x and D_y , can contain any type of data that is defined. From the "American Heritage Dictionary", the definition of aggregate is, "constituting or amounting to a whole; total." Therefore, as shown in the figures of Keim, all of the pixel bar charts provide a graph consisting of the partitioned data, although partitioned, provides an overall summary and the partitions' relationships, i.e. amounting to a total.

Claim Rejections - 35.U.S.C. § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims **1, 2, 8, 11, 13-15, 18, 20-22, and 24** are rejected under 35 U.S.C. 102(a) as being anticipated by "Hierarchical Pixel Bar Charts" to Keim et al.

In regards to claim 1, Keim teaches *a method for generating a pixel-oriented graph, comprising* [pg. 257 §3.1]:

- a) ***determining a visual boundary for representing an aggregate of a set of values of a variable depicted in the pixel-oriented graph;***

Dividing attribute for between-bar partitioning. Dividing attribute partitions the data into disjoint groups corresponding to the bars. Dividing attribute, i.e., one for the horizontal axis (D_x) and the one for the vertical axis (D_y). The dividing attributes (D_x) and (D_y) is used to partition the data into a small number of partitions [pg. 258-259 §4.1].

- b) ***constructing a set of pixel blocks that represent the values such that the pixel blocks are visually distinguished by the visual boundary,***
- i. ***each pixel block having a set of pixels,***
 - ii. ***each pixel having a pixel value that visually represents one of the values of the variable.***

Fig. 6 shows the general idea of pixel bar charts with the dividing attributes (D_x) and (D_y). Furthermore, each data item is represented by a single pixel in the bar

Art Unit: 2628

chart [pg. 257 §3.1]. Therefore, each pixel within each pixel block shown in Fig. 6 represents a value.

In regards to claim 2, Keim teaches allowing the user to select a bar of a pixel bar chart to get the bar expanded and the corresponding data partitioned according to the next level of the hierarchy [pg. 258 §3.3].

In regards to claim 8, Keim teaches specifying dividing attribute hierarchy for hierarchical partitioning of dividing attribute. The hierarchy is a grouping of categorical values or numerical value ranges from bottom to top of the hierarchy [pg. 258 §4.1].

In regards to claim 11, Keim teaches specifying a color attributes for pixel coloring [pg. 258 §4.1].

In regards to claim 13, claim 13 recites the same limitations as claim 1. Therefore, the same rationale used for claim 1 is applied. Furthermore, Keim teaches storing data on memory [pg. 262 §5.1]. Although Keim fails to explicitly teach a display and graphics processor, it would have been obvious to one of ordinary skill in the art that the pixel bar chart is displayed on display to the user that would be connected to a computer that comprises a processor to generate the pixel bar charts as taught by Keim.

Art Unit: 2628

In regards to claim **14**, claim 14 recites the same limitations as claims 2 and 13.

Therefore, the same rationale used for claims 2 and 13 is applied.

In regards to claim **15**, claim 15 recites the same limitations as claims 8 and 13.

Therefore, the same rationale used for claims 8 and 13 is applied.

In regards to claim **18**, claim 18 recites the same limitations as claims 11 and 13.

Therefore, the same rationale used for claims 11 and 13 are applied.

In regards to claim **20**, claim 20 recites the same limitations as claim 1. Therefore, the same rationale used for claim 1 is applied. Furthermore, Keim teaches the method is carried out via HTML and Java applets over a server [pg. 262 §5].

In regards to claim **21**, claim 21 recites the same limitations as claims 2 and 20.

Therefore, the same rationale used for claims 2 and 20 is applied.

In regards to claim **22**, claim 22 recites the same limitations as claims 8 and 20.

Therefore, the same rationale used for claims 8 and 20 is applied.

In regards to claim **24**, claim 24 recites the same limitations as claims 11 and 20.

Therefore, the same rationale used for claims 11 and 20 are applied.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **3-5, 9, 10, 12, 16, 17, 19, 23** and **25** are rejected under 35 U.S.C. 103(a) as being unpatentable over "Hierarchical Pixel Bar Charts" to Keim et al.

Keim teaches the limitations of claims 3 and 4 with the exception of explicitly teaching determining a location for a line and area. However, in regards to claim 3, Keim implicitly teaches *determining a visual boundary comprising determining a location for a line in the pixel-oriented graph in response to the aggregate*. The method of Keim specifies a dividing attribute for between-bar partitioning, by allowing more than one dividing attribute, i.e., one for the horizontal axis (D_x) and the one for the vertical axis (D_y). This implicitly defines a border (i.e. a line) to divides the data into sections (i.e. aggregates) [pg. 258-259 §4.1].

In regards to claims 4 and 5, Keim implicitly teaches *determining a visual boundary comprising determining a location for an area in the pixel-oriented graph in response to the aggregate*. With the same rationale as applied to claim 3, the dividing attributes (D_y and D_x) partition the data and thus, as shown in Fig. 6, define areas of data [pg. 258-259 §4.1]. Furthermore, can be seen in Fig. 6, the defined areas are rectangles.

Art Unit: 2628

Keim teaches the limitations of claim 9, with the exception of explicitly teaching replicating one or more pixels in the pixel block. However, in regards to claim 9, Keim teaches that specific requirements for pixel displays are dense display, i.e., bars are filled completely [pg. 259 §4.2]. The dense display constraint requires that all pixel rows (columns) except the last one be completely filled with pixels [pg. 260 §4.2.1].

Therefore, it would have been obvious to one of ordinary skill in the art that in order to fulfill this constraint, replication of pixels.

In regards to claim 16, claim 16 recites the same limitations as claims 9 and 13.

Therefore, the same rationale used for claims 9 and 13 is applied.

In regards to claim 23, claim 23 recites the same limitations as claims 9 and 20.

Therefore, the same rationale used for claims 9 and 20 is applied.

Keim teaches the limitations of claim 10 with the exception of explicitly disclosing a user selection of the visual boundary. However, Keim teaches specifying a dividing attribute for between-bar partitioning. Dividing attribute partitions the data into disjoint groups corresponding to the bars. Dividing attribute, i.e., one for the horizontal axis (D_x) and the one for the vertical axis (D_y). The dividing attributes (D_x) and (D_y) is used to partition the data into a small number of partitions [pg. 258-259 §4.1]. Furthermore, the system/method of Keim uses a web browser to allow real-time interaction to explore relationships and retrieve data within a region of interest. The user at the client side

Art Unit: 2628

visually explores the data by dynamically accessing the data through the browser [pg. 262 §5]. Therefore, although not explicitly taught, it is implicit that the user can specify such boundaries via the web browser of Keim.

In regards to claim **17**, claim 17 recites the same limitations as claims 10 and 13.

Therefore, the same rationale used for claims 10 and 13 is applied.

Keim teaches the limitations of claim **12** with the exception of explicitly disclosing applying a weight to the visual boundary. However, Keim teaches specifying coloring attributes. Different attributes may be assigned to colors in charts to relate the different coloring attributes and detect partial relationships among them [pg. 258-259 §4.1].

Therefore, it would have been to one of ordinary skill in the art that specifying the coloring around the visual boundary provides an indication to the user of the attribute of association.

In regards to claim **19**, claim 19 recites the same limitations as claims 12 and 13.

Therefore, the same rationale used for claims 12 and 13 are applied.

In regards to claim **25**, claim 25 recites the same limitations as claims 12 and 20.

Therefore, the same rationale used for claims 12 and 20 are applied.

Art Unit: 2628

3. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Hierarchical Pixel Bar Charts" to Keim et al. in view of "Designing Pixel-Oriented Visualization Techniques: Theory and Applications" to Keim.

"Hierarchical Pixel Bar Charts" to Keim et al. (further referred to as "Charts") teaches the limitations of claims 6 and 7 except disclosing location for a circle or curve. However, "Designing Pixel-Oriented Visualization Techniques" to Keim (further referred to as "Techniques") teaches applying different visualizations of pixel-oriented visualizations.

In regards to claims 6 and 7, claims 6 and 7 recites the same limitations as claim 1. Therefore, the same rationale used for claim 1 is applied. Additionally, "Techniques" teaches the circle segments technique where the visualization technique is to display the data dimensions as segments of a circle [Fig. 13, pg. 67 §5]. The circle technique inherently applies to a curve, as limited in claim 7.

It would have been to one of ordinary skill in the art to apply the visualization techniques of "Techniques" to the bar charts of "Charts" because the circle segments technique provides a better optimization, especially for larger dimensionalities and the whole data set is better perceivable ["Techniques" pg. 67 §5].

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle K. Lay whose telephone number is (571) 272-7661. The examiner can normally be reached on Monday-Friday 7:30a-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee M. Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2628

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michelle K. Lay
Patent Examiner
Division 2628
01.16.2007 mkl

May
Michelle K. Lay
Patent Examiner



KEE M. TUNG
SUPERVISORY PATENT EXAMINER